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A REVIEW OF THE GENUS *LASAIA* (RIODINIDAE)

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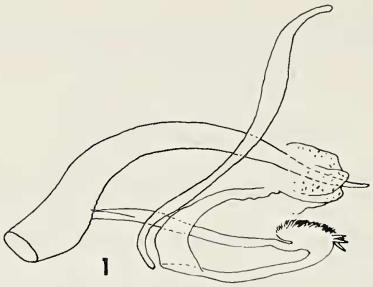
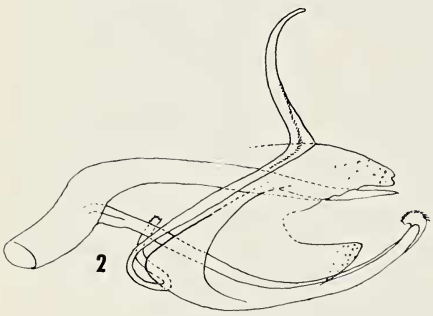
Lasaia IS A PARADOX. The genus itself is readily and accurately recognized and generic identification has given almost no trouble to anyone. Its species, on the other hand, have been a continuing source of misunderstanding and misidentification.

It is not clear what the difficulty has been. The species do run close, but many butterfly groups are just as difficult and have not given comparable trouble. Females are scarce and even now remain unknown in some species, but males are common enough and the taxonomy still relies chiefly on them. Whatever the reason, it is unfortunately true that no published work is able to give even approximately correct identification of most of the species. The present review, in fact, grew out of my frustration in trying to find accurate names for the *Lasaia* that occur in Mexico and the United States. It was soon evident that this could be achieved only by studying the genus in its entirety.

Acknowledgements. For the loan of specimens for study I am grateful to: Dr. H. J. Hannemann, Museum für Naturkunde der Humboldt Universität, Berlin; Mr. Bryant Mather, Jackson, Mississippi; Dr. Lee D. Miller, Allyn Museum of Entomology, Sarasota, Florida; Mr. Herman Real, San Mateo, California. Dr. Frederick H. Rindge, American Museum of Natural History, New York, made available the rich material of that institution during my recent visits there. Dr. Jean Bourgogne, Museum National d'Histoire Naturelle, Paris, and Mr. D. S. Fletcher, British Museum (Natural History), London, both provided photocopies of the rather involved original description of *L. agesilas,* and Mr. Fletcher also sent color transparencies of the original illustrations. Mr. F. Martin Brown, Colorado Springs, Colorado, during one of his visits here, made the photogaphs that illustrate this paper. I thank all these gentlemen for their valued assistance.

Most of the abbreviations used in this paper are readily understandable. A few require explanation: TL, type locality; adt, adterminal; st, subterminal; pm, postmedian (these three all referring to individual spot rows on the wings); fw, fore wing; hw, hind wing; up, upperside; un, underside (these two and the preceding two also used in combination, as upfw, unhw); *leg., legit* [collected by]; coll., in the collection of; *ex coll.,* from the collection of. Repositories of material examined are abbreviated as follows: AME, Allyn Museum of Entomology, Sarasota, Florida; AMNH, American Museum of Natural History, New York; CM, Carnegie Museum (including specimens received from ANSP, Academy of Natural Sciences, Philadelphia).





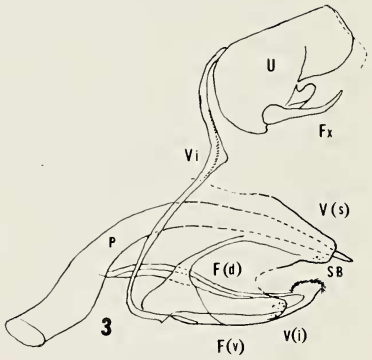


Fig. 1.—*Lasaia moeros moeros* Staudinger, ♂ genitalia, uncus omitted, slide C-1206. Peru: Sani Benj, 840 m, 1-7.ix.1935, *leg.* F. Woytkowski, CM.

Fig. 2.—*Lasaia sessilis* Schaus, ♂ genitalia, uncus omitted, slide C-1210. México: Veracruz: Fortin [de las Flores], 5.xii.1957, *leg.* B. Mather, CM.

Fig. 3.—*Lasaia maria maria* n. sp., ♂ genitalia, including uncus, slide C-1208, paratype. México: Jalisco: Ajijic, 3.ix.1966, *leg.* R. G. Wind, CM. Identification of component structures: U, uncus; Fx, falx; Vi, vinculum; P, Penis; V(s), valva: processus superior; V(i), valva: processus inferior; F(d), frenum: dorsal arm; F(v), frenum: ventral arm; SB, scobinate bulla.

Lasaia Bates

Lasaia Bates 1868, J. Linn. Soc. Zool. 9: 397. Type species *Papilio meris* Stoll [1781], by subsequent selection (Stichel 1910, Gen. Ins. 112 A: 184, 185).

Talites Capronnier 1874, Ann. Soc. Ent. Belge 17: 20. Type species *Papilio meris* Stoll [1781], by subsequent selection (Hemming 1935, Stylops 4: 2).

On the basis of wing configuration, pattern, color, size and male genitalia the genus divides readily into five species groups, containing up to three species each. The *moeros* and *sessilis* groups stand somewhat apart from the remaining three groups, and from each other as well.

The male genitalia of *Lasaia* (figs. 1-7) are uniform in general plan throughout. They consist of a contorted ring-like vinculum, a dorsal posterior uncus (omitted in all figures but fig. 3), a pair of modified posterior valvae, and a simple penis attached to the ventral vinculum by a heavily sclerotized frenum. The frenum is apically modified into a peculiar scobinate bulla. There is no saccus.

The *vinculum* (fig. 3, Vi) is uniformly narrow and strap-like. Laterally it is angled abruptly (*lateral angle*), usually strongly. The lateral angle divides each side into a *dorsal segment* and a *ventral segment*. Middorsally and midventrally the vinculum is posteriorly excurved, the dorsal loop fitting into an invagination of the proximal margin of the uncus.

The *uncus* (fig. 3, U) is massive, subquadrate, obscurely bilobed posteriorly, and laterally is provided with a pair of U-shaped, blunt-tipped falces (Fx). The uncus is relatively uniform in structure throughout the genus and is therefore omitted from all the figures but fig. 3.

Each of the paired *valvae* consists of a *processus superior* (fig. 3, V(s)), setose and moderately sclerotized apically, the two apparently united to each other dorsally and forming a sort of trough or guide for the penis; and a *processus inferior* (fig. 3, V(i)), apically setose and rounded, but very lightly sclerotized and often hard to see. The proximal parts of the valvae are membranous and impossible to study in detail save for an elongate, erect, triangular-shaped, sclerotized piece that arises on the base of the ventral arm of the frenum and extends dorsally to the processus superior, its union with the latter being obscure.

The *penis* (fig. 3, P) is a simple, elongate, downbent structure, tapering distad to a blunt point. It lacks cornuti.

The *frenum* in *Lasaia* is a complex strap that connects the penis with the ventral vinculum. It consists of a *dorsal arm* (fig.

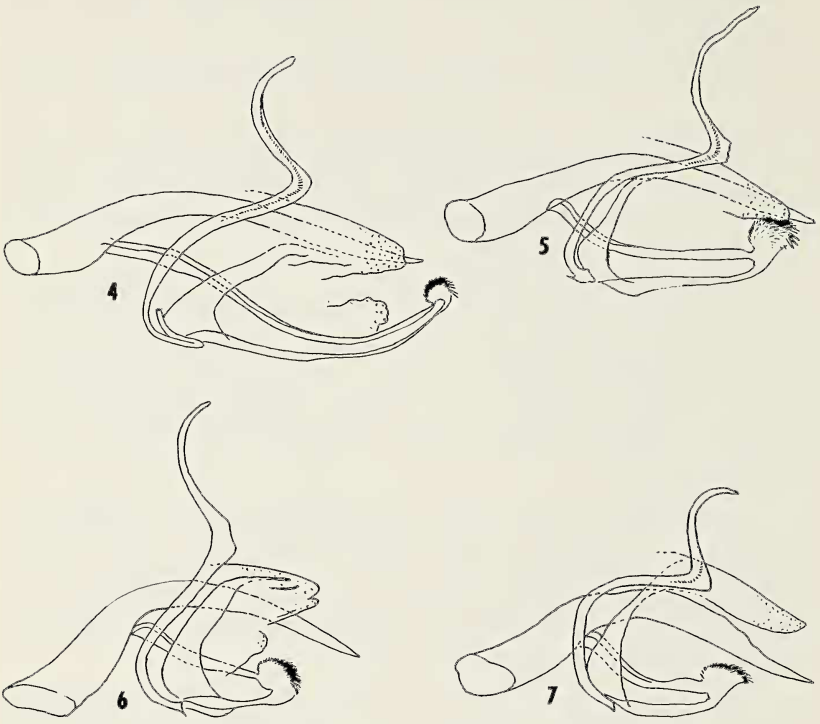


Fig. 4.—*Lasaia arsis* Staudinger, ♂ genitalia, uncus omitted, slide C-1209. Bolivia: Rio Yapacani, 600 m, ii.1915, *leg.* J. Steinbach, CM.

Fig. 5.—*Lasaia pseudomeris* n. sp., ♂ genitalia, uncus omitted, slide C-1211, paratype. Bolivia: Rio Surutu, 350 m, iii.1915, *leg.* J. Steinbach, CM.

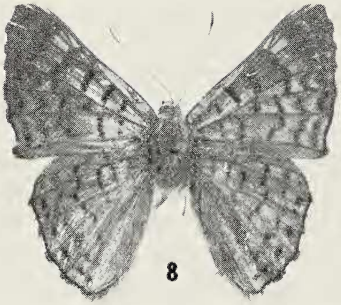
Fig. 6.—*Lasaia agesilas callaina* n. ssp., ♂ genitalia, uncus omitted, slide C-1205, paratype. México: San Luis Potosí: Cd. Valles, 9.vi.1966, *leg.* H. A. Freeman, CM.

Fig. 7.—*Lasaia sula peninsularis* n. ssp., ♂ genitalia, uncus omitted, slide C-1212, paratype. México: Yucatán: Pisté, viii.1952, *leg.* E. C. Welling, CM.

3, F (d)), a band that arises on the ventral surface of the penis near its base and extends posteriorly beyond the valvae to end in the scobinate bulla; and a *ventral arm* (fig. 3, F(v)) which arises on the ventral vinculum and extends posteriorly to end also in the scobinate bulla. The ratio of the length of the dorsal arm to the length of the penis is taxonomically useful and is given for most species. In other riodinids the frenum is a simple looped strap that extends posteriorly from the penis, then curves around to end on the vinculum: the dorsal and ventral arms being defined simply by position, with no scobinate bulla present. The *scobinate bulla* (fig. 3, SB) in *Lasaia* appears to be an elaborate modification of the bend in this simple type, for intermediate states of development can be found in other genera. The bulla is an expanded, rounded knob, provided with a dense pile of fine spiculae on the dorsal part, the spiculae directed posteriorly and generally tending to become larger toward the posterior part of the bulla. The scobinate bulla exists in two types in *Lasaia*: *rounded,* the ventral margin regularly convex and curving around to the dorsal; and *flared,* the ventral margin slightly recurved and hence concave in lateral view. These two types are distributed in a curious way within the genus. In the *sessilis* group, the bulla is rounded in *sessilis,* flared in *maria;* in the *arsis* group it is rounded in *arsis,* flared in *pseudomeris;* and in the *agesilas* group it is rounded in *agesilas,* flared in *sula.*

In general the genitalia provide good species characters, and they also provide some traits that support the higher groupings based on external characters. Because of the firm union of the penis and the ventral vinculum, *via* the frenum, and because of the complex structure and light sclerotization of the valvae, as well as the contorted form of the vinculum, it is impossible to show the structures well in any sort of dorsal or ventral view, or to dissect the components to show them separately. They are best studied in a whole (undissected) lateral mount.

The genus *Lasaia* is exclusively Neotropical and occurs mostly in the Tropical and Subtropical life zones. In low latitudes, where the annual temperature cycle is of small amplitude, some species may occur upward into the Lower Austral zone, and a few are found even in the Upper Austral. According to Godman & Salvin they prefer more or less open, thinly wooded areas (presumably open forest, savanna and scrub) and are often found associated with sandy or gravelly places along streams. They are powerful fliers but they visit flowers readily and may be captured at them without difficulty.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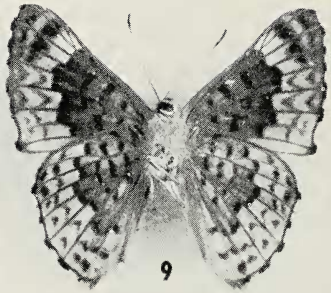
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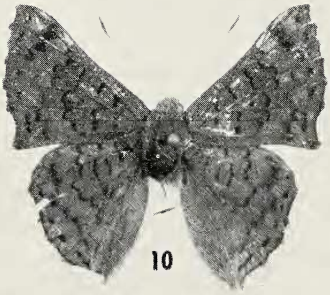
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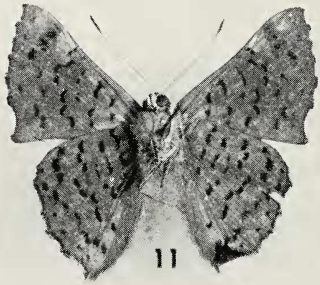
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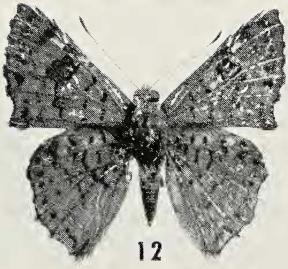
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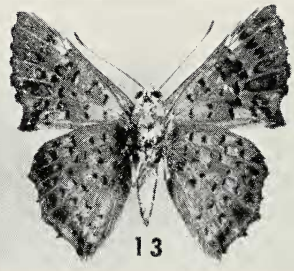
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In the Andean region six species occur (*moeros, arsis, pseudomeris, aerugo, agesilas, oileus*), a larger number than is known from any other area of comparable size and diversity anywhere. Surprisingly, the second largest number, five species (*sessilis, maria, sula, agesilas, oileus*), is found in the relatively small region that includes southern Mexico, Guatemala and British Honduras. In most other areas no more than three species are found. The southernmost limit of *Lasaia* is in Paraguay and southeastern Brasil; the northernmost is in southern Texas. No member of the genus has been found in the West Indies.

SYNOPSIS OF SPECIES

A. *moeros* group

1. moeros Staudinger 1888
   a. moeros Staudinger 1888
      rosamonda Weeks 1900
   b. kennethi Weeks 1901
      merita Godman 1903
      pura Seitz 1917

B. *sessilis* group

2. sessilis Schaus 1890

3. maria n. sp.
   a. maria n. ssp.
   b. anna n. ssp.

C. *arsis* group

4. arsis Staudinger 1888

5. meris Stoll 1781

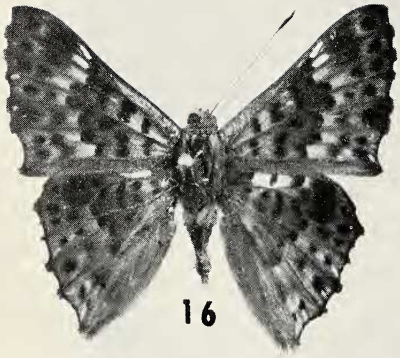
6. pseudomeris n. sp.

D. *agesilas* group

7. sula Staudinger 1888
   a. peninsularis n. ssp.
   b. sula Staudinger 1888

8. aerugo n. sp.

Fig. 8.—*Lasaia moeros moeros* Staudinger, ♂ upperside. Peru: Sani Benj, 840 m, 1-7.ix.1935 (F. Woytkowski).
Fig. 9.—Same specimen, underside.
Fig. 10.—*Lasaia sessilis* Schaus, ♂ upperside. México: Veracruz: Córdoba, *ex coll.* ANSP, CM.
Fig. 11.—Same specimen, underside.
Fig. 12.—*Lasaia maria maria*, n. sp., ♀ upperside. Holotype.
Fig. 13.—Same specimen, underside.
Fig. 14.—*Lasaia maria maria*, n. sp., ♀ upperside. Paratype: México: Jalisco: Ajijic, 5400 ft., 17.xii.1966 (R. G. Wind).
Fig. 15.—Same specimen, underside.



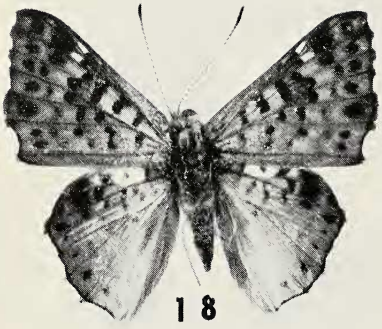


Fig. 16.—*Lasaia arsis* Staudinger, ♂ upperside. Lectotype.
Fig. 17.—Same specimen, underside.
Fig. 18.—*Lasaia pseudomeris,* n. sp., ♂ upperside. Holotype.
Fig. 19.—Same specimen, underside.

9. agesilas Latreille 1809
   a. esmeralda n. ssp.
   b. agesilas Latreille 1809
      narses Staudinger 1888
   c. callaina n. ssp.

E. *oileus* group

10. oileus Godman 1903
11. scotina Stichel 1910

KEY TO SPECIES

1. a. Small: length of fw 11 mm or less; up mostly brown, with little or no blue in either sex 10
   b. Larger: length of fw 12 mm or more; ♂ up usually shining green or blue, less often bronze brown or steel blue; ♀ may or may not have some blue above 2
2. a. Uphw (♂ only; no ♀ seen) with a prominent white patch in the fuscous costal area, usually enclosing a small fuscous dot 3
   b. No such patch 5
3. a. Larger, length of fw 14 mm and over, usually over 16 mm; ♂ hw margin usually straight between M_1 and M_3; ♂ hw with many fuscous or black spots on wing below M_1 + costal edge of cell, including spots in cell, the pm spot row and a row of st spots; fringe white, but fuscous checkering broad, at Cu_1 and Cu_2 nearly as broad as the white between them ..... *arsis* (p. 168)
   b. Smaller, length of fw rarely exceeding 15 mm 4
4. a. ♂ uphw nearly immaculate green below M_1 + costal edge of cell; ♂ hw margin usually concave between M_1 and M_3; ♂ hw fringe almost pure white, the fuscous checkering at vein-ends hardly broader than the veins themselves ... *pseudomeris* (p. 170)
   b. ♂ hw marked about as in *arsis* (cf. couplet 3.a), hw margin and fringe not known. Not seen, perhaps confined to the Guiana coast ..... *meris* (p. 169)
5. a. Fw (but not hw) up and un, st line consists of a series of transverse fuscous crescents; ♂ up blue-green, shining; pm line upfw tends to be straight between costa and Cu_1; in general appearance more regularly margined, easily recognized but hard to describe ..... *moeros* (p. 159)
   b. Fw, up and un, st line consists of a row of round fuscous spots, sometimes heavy; ♂ up ground variable: may be shining blue-green or dull bronze-brown or dull steel blue; pm line of fw tends to be quite irregular between costa and Cu_1; in general appearance more irregularly margined 6
6. a. Un ground (♂, ♀) uniform brown, with crisp darker brown spots and no trace of blotchy suffusions; ♂ up dark bronze with a shining bluish cast; ♀ up brown, dull, with faint darker markings ..... *sessilis* (p. 164)
   b. Un ground variegated, partly brown, partly white or bluish; ♂ up steel blue or shining blue-green; ♀ up usually with variegated brown ground, usually with some bluish or greenish on part of the wings 7
7. a. ♂ up dull steel blue; ♀ up bluish fuscous with ochreous patches and a more or less pronounced pm band of whitish; ♂ un with ochreous brown ground, including the entire area distad of the st spots on both wings; a marked pm band of shining pale bluish; ♀ un similar but the band whitish .... *maria* (p. 164)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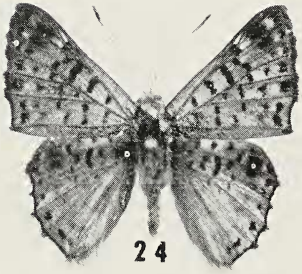
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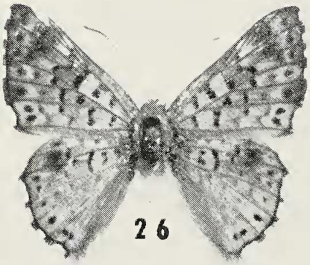
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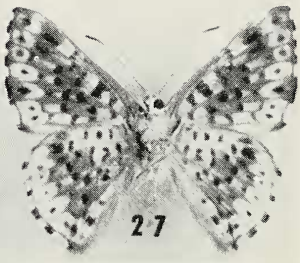
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b. ♂ up shining greenish blue, ♀ up various, but without ochreous patches; un with at least part of the area distad of the st spots bluish or white on both wings 8

8. a. ♂ unhw base white, not bluish at all; ♀ unhw st line more or less parallel to termen, commonly faint in cubital region; both sexes, up and un, fuscous spotting small and often pale 9

b. ♂ unhw base fuscous or, if pale, with a distinct bluish or violet cast; ♀ unhw st line retracted (and not paler) in cubital area and therefore seeming almost straight from end of M_1 across to inner margin just basad of tornus; both sexes, up and un, spotting thick and dark ..... *agesilas* (p. 175)

9. a. ♂ unhw ground distad of st line white, infuscated both costally and tornally; adt spots distinctly closer to st line than to termen; up greenish blue ..... *sula* (p. 171)

b. ♂ unhw ground distad of st line white, with no such infuscation; adt spots equidistant between st line and termen: up blue ..... *aerugo* (p. 173)

10. a. Underside (both sexes) ground bluish white, with fuscous spots and blotches; upfw costal white spot present just beyond pm line ..... *oileus* (p. 179)

b. Underside (at least ♂) ground pale tan with dark brown minute spots; upfw with no costal white spot ..... *scotina* (p. 179)

A. *moeros* group

Wing termina entire, little excised between Cu_2-2A of fore wing; fringe checkering of fore wing fairly regular; lines, especially on fore wing, tending to greater regularity; fore wing subterminal line a series of transversely elongate crescents rather than rounded spots as in all other groups. The male genitalia (seen only of *m. moeros*) are distinguished from those of all other groups by the only slightly sinuate vinculum, there being almost no lateral angle. In addition the sclerotized part of the processus superior of the valva is shorter than in any other group. Females are still unknown.

1. *Lasaia moeros* Staudinger

1. a. *Lasaia moeros moeros* Staudinger (Figs. 1, 8, 9)

Lasaia Moeros Staudinger 1888, Exot. Tagfalter: 257; [not listed in Mengel 1905, Cat. Eryc.]

Lasaia m. moeros: Stichel 1910, Berliner Ent. Zschr. 55: 48 [implicit]; *ibid.* 1910, Gen. Ins. 112 A: 187; Seitz 1917, Grossschmett. Erde 5: 692 [see note below]; Stichel 1930, Lep. Cat. 26: 438.

Lasaia rosamonda Weeks 1900, Proc. New England Zool. Club 2: 45; *ibid.* 1905. Ill. Diurn. Lep. 1: 9, pl. 5; Mengel 1905. Cat. Eryc.: 109; Stichel 1910, Gen. Ins. 112 A: 187 [as syn. of *m. moeros*].

Fig. 20.—*Lasaia sula peninsularis,* n. ssp., ♀ upperside. México: Veracruz: 2 mi SE Coatzacoalcos, 18.i.1966 (H. Clench & L. D. Miller, sta. 24, CM-CUA Exp.).

Fig. 21.—Same specimen, underside.

Fig. 22.—*Lasaia sula peninsularis,* n. ssp., ♂ upperside. Holotype.

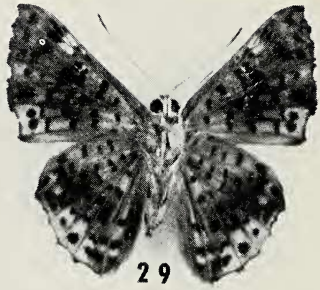
Fig. 23.—Same specimen, underside.

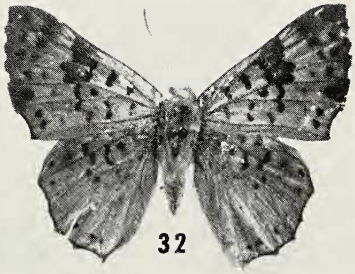
Fig. 24.—*Lasaia sula sula* Staudinger, ♂ upperside. Lectotype.

Fig. 25.—Same specimen, underside.

Fig. 26.—*Lasaia aerugo,* n. sp., ♂ upperside. Holotype.

Fig. 27.—Same specimen, underside.





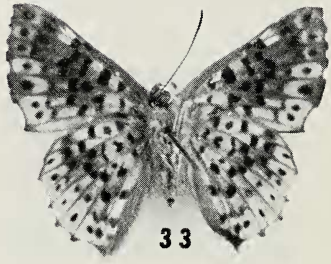


Fig. 28.—*Lasaia agesilas callaina*, n. ssp., ♂ upperside. Holotype.
Fig. 29.—Same specimen, underside.
Fig. 30.—*Lasaia agesilas agesilas* Latreille, ♂ upperside. Lectotype of *Lasaia narses* Staudinger.
Fig. 31.—Same specimen, underside.
Fig. 32.—*Lasaia agesilas esmeralda*, n. ssp., ♂ upperside. Paratype. Paraguay: Villarrica, 11.xii.1921 (P. Jorgensen).
Fig. 33.—Same specimen, underside.

Seitz badly confused the forms of this species (cf. Stichel 1930). On plate 135 h he figures both surfaces of a form he calls *pura*. In the text he synonymizes this name to *m. moeros*, but it is actually a synonym of *moeros kennethi*. The form figured on plate 135 i as *kennethi* is actually *m. moeros*. The form figured on plate 135 i as *merita* is correct (his figures appear to have been copied from Godman's), but *merita* is a synonym of *kennethi*.

Nominate *moeros* is well marked with both pm and st lines on the upperside, including the hind wing. On the hind wing underside the pm line is rather heavy and usually encloses a darker basal area; the st line is present as a series of dots or chevrons.

This form is so far known only from Colombia, Ecuador and Peru. The authentic Peruvian and Ecuadorian records are all from the eastern slope of the Andes, within the narrow range of about 850-1100 meters elevation. The Colombian records are widely disjunct (some 800 miles northward), and contrast otherwise: Muzo is west of the eastern Cordillera Oriental of the Andes, in the Magdalena drainage, but at about 900 meters; Bogotá itself is above 2000 meters and west of the Cordillera Oriental, but the actual site of collection could have been anywhere within a large radius and over a considerable range of altitude.

COLOMBIA. Boyaca: Muzo (AME).—Cundinamarca: Bogota district (TL *rosamonda*).

ECUADOR. Oriente: Puyo, 3500 ft., Rio Pastaza (AMNH).

PERU. San Martín: Riojo [=Rioja?], 900m, Rio Secol (CM).—Huanuco: Rio Pichis, 300 m; Pozuzo [ca. 900 m] (both AME).—Pasco: Rio Palcazu, Chuchuras (AME).—Junin: La Merced (AMNH); Satipo [ca. 900 m] (AME, CM).—Ayachucho: Candalada la Mar, vi. 1941 (AMNH).—Not located: Concepción (CM); "Sani Benj" 840 m (CM); Chanchamayo (TL *moeros*).

1. b. *Lasaia moeros kennethi* Weeks

Lasaia kennethi Weeks 1901, Proc. New England Zool. Club 2: 71; *ibid.* 1905, Ill. Diurn. Lep. 1: 86, pl. 36; Mengel 1905, Cat. Eryc.: 109.

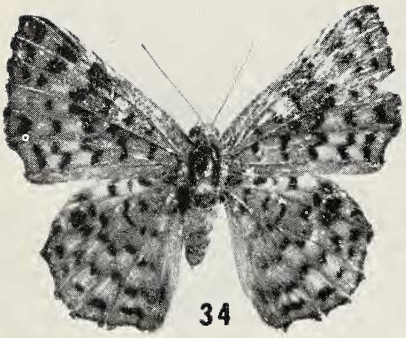
Lasaia moeros kennethi: Stichel 1910, Berliner Ent. Zschr. 55: 48; *ibid.* 1910, Gen. Ins. 112 A: 187; Seitz 1917, Grossschmett. Erde 5: 692 [see note under *m. moeros*]; Stichel 1930, Lep. Cat. 26: 438.

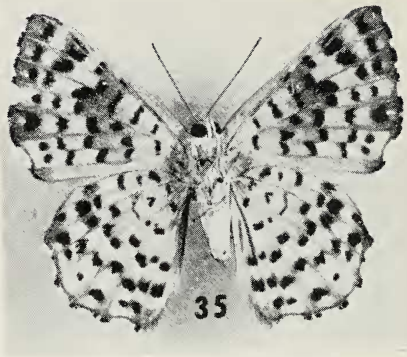
Lasaia merita Godman 1903, Trans. Ent. Soc. London 1903: 541, pl. 22 fig. 9; Mengel 1905, Cat. Eryc.: 109; Stichel 1910, l.c. [both references] and 1930, *l.c.* [in all as syn. of *kennethi*].

Lasaia moeros merita: Seitz 1917, *l.c.*, pl. 135 i.

Lasaia pura Seitz 1917, Grossschmett. Erde 5: pl. 135 h [in text, p.692, erroneously synonymized to *m. moeros*]; Stichel 1930, Lep. Cat. 26: 439 [as syn. of *kennethi*].

Differs from nominate *moeros* in the great reduction of nearly all the fuscous markings. There are no line elements on the hind wing above, and few on the fore wing; on the underside the st


34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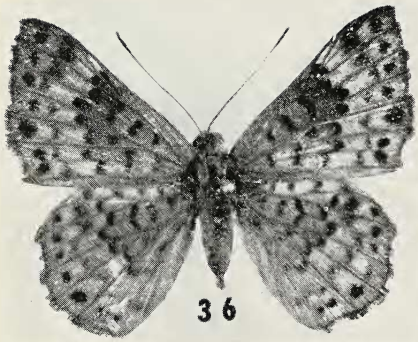
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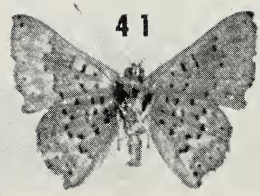
41

line is absent on both wings and the pm line of the hind wing is reduced to a few faint, small spots, the area basad not dark-shaded.

This distinctive subspecies appears to replace *moeros* to the south, and possibly ranges to higher elevations. I suspect that it may actually be a distinct species, but unfortunately have seen no specimens.

PERU. Huanuco: Pozuzo[1] (Stichel 1910).

BOLIVIA. Cochabamba: 5 days' travel north of Cochabamba (I estimate that this is about 100 miles north and a little west of Cochabamba, perhaps near the junction of Rio Cotacajes and Rio Santa Elena. Cf. Weeks 1905, Ill. Diurn. Lep. 1: 25 ff.).—La Paz: Coroico, 6500 ft. (TL *merita*).—Not located: Chairo (Godman 1903).

B. *sessilis* group

Wing termen markedly excised between Cu_2 and 2A of fore wing, and with a slight tooth or projection at M_1 of hind wing (both characters found in all the following groups as well); fore wing fringe with white checkering fairly regular, including a distinct white patch between Cu_1 and Cu_2 (this white patch or spot is minute or absent in all following groups); ground color of male upperside darker and less lustrous than in either the *arsis* or *agesilas* groups. Despite the distinctness of this group in external traits there seems to be no comparable group characters in the male genitalia. The frenum is unusually long in *sessilis*, but this is matched in *arsis* (of the *arsis* group); and in the other species, *maria*, the length is conventional. In both species the base of the triangular sclerotized part of the valvae is a little broader than in any other group, but this is of limited diagnostic value. Females are known in both species.

[1]I am inclined to question this locality, far to the north of other records. Nominate *moeros (q.v.)* is also recorded from there.

Fig. 34.—*Lasaia agesilas callaina*, n. ssp., ♀ upperside. Paratype. México: San Luis Potosí: Cd. de Valles, 11.vi.1967 (H. A. Freeman).
Fig. 35.—Same specimen, underside.
Fig. 36.—*Lasaia agesilas agesilas* Latreille, ♀ upperside. Panama: Chiriquí, *ex coll.* O. Staudinger, in CM (specimen also figured by Holland 1931, *Butterfly Book* [rev. ed.], pl. 64 fig. 3).
Fig. 37.—Same specimen, underside.
Fig. 38.—*Lasaia oileus* Godman, upperside. British Honduras: Stann Creek Distr.: Middlesex, 125 m, 4.vii.1964 (E. C. Welling).
Fig. 39.—Same specimen, underside.
Fig. 40.—*Lasaia scotina* Stichel, ♂ upperside. Holotype.
Fig. 41.—Same specimen, underside.

This group is confined to Mexico and Guatemala, chiefly at low (*sessilis*) or moderate (*maria*) elevations. Both species have been misdetermined frequently in the past.

2. *Lasaia sessilis* Schaus (Figs. 2, 10, 11)

Lasaia sessilis Schaus 1890, Ent. Americana 6: 18; Godman & Salvin 1901, Biol. Centr.-Amer., Lep. Rhop. 2 (suppl.): 707; Stichel 1910, Gen. Ins. 112 A: 187 [in part].

Lasaia meris var. *sessilis*: Mengel 1905, Cat. Eryc. 109.

This is a rare and extremely local species. Probably because of this rarity, the name *sessilis* has been misapplied commonly to at least two other species (*maria, sula*). Godman & Salvin are the only authors since Schaus to have recognized *sessilis* correctly.

The dark, slightly lustrous bronze-brown upperside of the male, and the uniform gray-brown ground of the underside (both sexes) are exactly as described by Schaus and occur in no other known *Lasaia* except the tiny *scotina*. The male genitalia (fig. 2) differ from those of the related *maria* in several traits. The frenum is much longer than in *maria* (dorsal arm 0.80-0.81 as long as penis in *sessilis*, 0.57-0.59 in *maria*); the scobinate bulla is rounded (flared in *maria*); the lateral angle of the vinculum is approximately a right angle in *sessilis*, obtuse in *maria*.

The species appears to be confined to the foothill region along the eastern Sierra Madre, from central Mexico south to Guatemala.

MEXICO: San Luis Potosí: Cd. Valles, *leg.* H. A. Freeman (CM). Veracruz: Coatepec (TL); Jalapa (AMNH, also Godman & Salvin, l.c.); Fortín [de las Flores], *leg.* B. Mather (CM and coll. B. Mather); Córdoba (CM); Ojo de Agua [= source of Rio Atoyac, nr. Córdoba], 1600 ft. (AMNH). Mexico, no further data (AMNH).

GUATEMALA: Rio Chisoy [Chixoy] (Godman & Salvin, *l.c.*).

3. *Lasaia maria* new species

3. a. *Lasaia maria maria* new subspecies (Figs. 3, 12-15)

Lasaia sula: Stichel 1910, Gen. Ins. 112 A: 186, pl. 26 fig. 49; Seitz 1917, Grossschmett. Erde 5: 692; Hoffman 1941, An. Inst. Biol. Mexico 11: 697 (?).

Lasaia sessilis: Seitz 1917, Grossschmett. Erde 5: 692, pl. 142 f.

Additional references may apply to this species, but are too doubtful to list.

Male. Upperside dull steel blue. Fore wing with all line elements typical of the genus, black, thin and linear in disc and base of wing; area between pm line and cell-end bar filled with fuscous; just distad of pm line at costa a few whitish spots; st spot in Cu_2-2A faint or absent; no infuscation in Cu_1-Cu_2 terminal area. Fringe with definite white spot in Cu_1-Cu_2 as large as those costad. Hind wing with costal area ruddy brown

in basal half; all line elements present, black, thin and linear, faint below M_1 + costal border of cell; segment of pm line in Rs-M_1 dislocated only a little distad of those before and after it. Underside of both wings ochreous or ruddy brown, with all line elements present, thin and faint, but those in terminal area reduced almost to absence. Extreme base of fore wing, a band between pm and st lines on both wings, and inner marginal area of hind wing, all gray-blue.

Female. Upperside of both wings ruddy brown or gray-brown, more or less suffused with dull steel blue (fresh specimens may be nearly as blue as the males); all line elements present, fuscous, thin; between pm and st lines a whitish band cut by dark veins, may be present (sometimes on both wings, sometimes on fore wing alone, sometimes almost completely suppressed). Underside as in male, but a little paler and bluish areas are white instead.

Male genitalia (fig. 3). Frenum barely over average length, the dorsal arm being 0.57-0.59 as long as penis; scobinate bulla flared; lateral angle of vinculum sharp and obtuse.

Length of fore wing: males, 13.0-15.0 mm, mean (of 4) 14.4 mm; females, 13.0-15.0 mm, mean (of 3) 14.3 mm. The type series only.

Holotype, male, Ajijic, 5300 ft., Jalisco, Mexico, 20.vii. 1966, *leg.* R. G. Wind.

Paratypes, 4 males and 4 females, same locality and collector, some labelled 5300 or 5400 ft., some with no elevation indicated, dated 2.ix.1965 (♂), 8.viii.1966 (♀), 3.ix.1966 (♂), 4.xii.1966 (2 ♀)), 7.xii.1966 (♂), 9.xii.1966 (♂), 17.xii.1966 (♀).

Holotype and all paratypes, C. M. Ent. type series no. 645.

Remarks. In addition to the type series I have seen specimens from the following localities:

MEXICO. Jalisco: 7 mi S of La Cumbre de Autlán, 3200 ft., 1966, *leg.* P. Hubbell (2 ♂, AMNH).—Colima: Colima, 1600 ft., 26.i.1968, *leg.* R. G. Wind, at light (1 ♀, AME); Comala, 2100 ft., 4-19.v.1967, *leg.* R. G. Wind (1 ♂ 2 ♀, CM).—Michoacán: Uruapan, v, *ex coll.* C. C. Hoffman (1 ♂ AMNH); El Sabino, Uruapan, 15-30.vii.1936, *leg.* H. D. Thomas (1 ♂ AMNH); Balneario San José Purúa [nr. Zitacuaro], [ca. 4300 ft.], 1.xii.1965, *leg.* B. Mather (series, coll. B. Mather and CM). — Guerrero: no further data, vii.1911, *ex coll.* C. C. Hoffmann (2 ♂ AMNH). — Oaxaca: Huajuapan [de Leon], ix.1937, *ex coll.* C. C. Hoffmann (1 ♀ AMNH); Tehuantepec, 16.viii.1964, *leg.* H. A. Freeman (1 ♀ CM).

GUATEMALA. Rabinal, 3000 ft., vii.1947, *leg.* C. & P. Vaurie (2 ♂ AMNH).

L. maria has been known a long time, as shown by the two illustrations cited above (both misidentified: by Stichel as *sula*;

by Seitz as *sessilis*). Apparently *maria* has been misdetermined most often as *sula* and, since both species occur in close proximity and sometimes together (as at Comala, Colima), a detailed comparison of the two may be useful.

Both are about the same size, and females of both may have pale postmedian bands (between pm and st lines) above. Males of *sula* are shining blue-green to green above, of *maria* dull steel blue, not shining and rarely greenish (but compare *maria anna* below); males of *sula* have the terminal area in Cu_1-Cu_2 of the fore wing above suffused with fuscous, not so in *maria*; females of *sula* have gray-brown ground above, never bluish, while *maria* females are suffused with dull bluish above, often extensively; on the underside both sexes of *sula* have patches of whitish or pale bluish ground color in the marginal areas (distad of the st line) on both wings, while in *maria* these areas are solid brownish. Males of *maria* have a white spot in the fringe of the fore wing in Cu_1-Cu_2 about as large as those costad; in *s. sula* this spot is absent entirely; in *sula peninsularis* it is present, but a little smaller than those costad.

The closest relative of *maria* appears to be *sessilis,* from which *maria* differs in the steel blue (instead of brown) upperside of the male, and the paler and variegated underside ground color. The genitalia of the two species are quite different (fig. 3, *maria;* fig. 2, *sessilis*); the frenum of *maria* is much shorter (length of dorsal arm 0.57-0.59 length of penis in *maria,* 0.80-0.81 in *sessilis*); the scobinate bulla in *maria* is flared, in *sessilis* round; the ventral segment of the vinculum is somewhat more curved in *maria* than in *sessilis* (where it is unusually straight).

As far as records reveal, nominate *maria* occurs at middle elevations (mostly from 2000 to 6000 ft.) from western central Mexico south to central Guatemala. Hoffmann's (*l.c.*) description of the range of "*sula*" conforms well with the records here given of *maria,* and I therefore believe that he misdetermined this species as *sula.*

It gives me much pleasure to name this handsome and distinctive species in honor of my wife, Dr. Mary Anne Heimerdinger Clench.

3 b. ***Lasaia maria anna,*** new subspecies

Male. Differs from the nominate subspecies in the following ways: the upperside color is distinctly dull greenish blue, rather than steel blue; the subapical costal white spots of the fore wing

are fainter; the upperside black spotting is somewhat reduced; the underside pale band between pm and st lines is more distinct and, on the fore wing, more shining bluish. The adterminal black spots on the underside of both wings are larger and more prominent.

Female. The single female examined is a fresh specimen, larger than any of the examined females of the nominate subspecies (fore wing length 16.0 mm.). The upperside is gray-black, strongly overcast with dull steel blue, and lacking any ruddy or brownish tinge; the whitish band distad of the pm line is moderately indicated on the fore wing, barely so on the hind wing: the adterminal fuscous spots are much larger and darker on both wings. On the underside the ground is more grayish (distinctly less ochreous) than in nominate females and the adterminal spots, as on the upperside, are much larger and darker.

Holotype, male, [Cd.] Victoria, [Tamaulipas], Mexico, 10.vi, C. M. Ent. type series no. 646.

Paratypes, 5 males, all same locality, 10.vi.1941. Three of these bear the collectors' names: [D.B.] Stallings and [J.R.] Turner; all are in the AMNH. 1 female, ca. 26 km SW Tula, ca. 22° 50′ N, 99° 53′ W, 1000 m, Tamaulipas, Mexico, 13.ix.1970 (*leg.* Harald Schreiber and C.J. McCoy, Jr.); in CM.

Remarks. In addition to the type series there is a single male in the AMNH from Jalapa [Veracruz], *leg.* Schaus. This subspecies, apparently confined to central eastern Mexico, seems to be unusually local and uncommon.

C. *arsis* group

The species of this group are distinguished, at least in the males, by the presence of a clear white patch (usually enclosing a black dot) in the middle of the costal area of the hind wing upperside. Males are shining blue-green above, as in the *agesilas* group, but generally with heavier fuscous markings on the fore wing above, and with sharper, more crisp and contrasty, fuscous line elements and mottling below. The male genitalia have the processus superior of the valvae closely encircling the penis, their sclerotized parts a little longer than in other groups; the penis is less curved, and the curve more distad, than in other groups. I have seen no females of any of the species.

So far as available records indicate, this group is entirely confined to South America, extending north only to Panama. Repeated references to members of this group from farther north appear to be based on misidentification.

4. *Lasaia arsis* Staudinger (Figs. 4, 16, 17)

Lasaia arsis Staudinger 1888, Exot. Tagfalter: 257, pl. 91.
Lasaia meris: Staudinger, l.c.; Mengel 1905, Sat. Eryc. : 108.
Lasaia meris arsis: Stichel 1910, Berliner Ent. Zschr. 55: 48; *ibid.* 1910 Gen. Ins. 112 A: 186; Seitz 1917, Grossschmett. Erde 5: 692, pl. 135 g; Stichel 1930, Lep. Cat. 26: 436.

Staudinger named *arsis* on the cited plate, but synonymized it in the accompanying text to *meris*. It is probably for this reason that no syntype series is marked as such in the Staudinger material of the Berlin Museum. As Staudinger observes, at that time two distinct species [he refers to *arsis*, which he called *meris*, and *agesilas*, which he called *narses*] were widely confused in collections under the name *meris*. He was first made aware of this through the specimens and field observations of Dr. Hahnel (see under *agesilas*), so it is most appropriate that the Hahnel specimens of both forms be considered syntypic respectively. Staudinger probably exchanged or sold many of these, but under *arsis* two such specimens survive. Either could well have been the specimen illustrated on plate 91, but one seems to fit a little better than the other. This one I here designate as lectotype, and I have so labelled it. The other I have labelled as paratype.

Lectotype of *Lasaia arsis* Staudinger 1888: ♂, bearing a printed label (black letterpress), "Manicoré / Hhl." and a second printed label (black letterpress), "Coll. / Staudinger." To these I have added a penned label reading "Lectotype ♂ / Lasaia arsis / Staudinger 1888 / design. H. Clench / Aug. 1970." Length of fore wing 15.5 mm.

Paratype of *L. arsis*: ♂, bearing a penned label, "Yurimaguas / Hhl. 83" and a printed label, "Coll. / Staudinger."

Both specimens are in the Museum für Naturkunde des Humboldt-Universität, Berlin.

Differs from *pesudomeris* (♂) in its larger size (fore wing length 16-17 mm compared to ca. 13-14 mm in *pseudomeris*) and heavier spotting, particularly on the hind wing, which is liberally spotted below M_1 + costal border of cell (almost immaculate in *pseudomeris*). From *meris* it differs, so far as I can tell, chiefly in its larger size (*meris* is about the size of *pseudomeris*). Staudinger's figure is excellent and the specimens I have examined agree well with it. The male genitalia are quite distinct from those of *pseudomeris* (see comparison under that species). They strikingly resemble, particularly in the frenum, the genitalia of *sessilis*.

It is possible that *arsis* is a subspecies of *meris*, as Stichel

thought, but without specimens of *meris* I cannot tell, and material of *arsis* at hand does not indicate any significant geographic variation.

Material seen implies that *arsis* occupies a disjunct range. One area includes the Andes, apparently chiefly their eastern foothills, from Venezuela south to Bolivia. The second area comprises the lower Amazon River. In support of this disjunction is the fact that there are no specimens in Carnegie Museum from Sao Paulo de Olivença or localities on the Rio Purús, although we have large collections from these places. Specimens have been seen from these localities:

VENEZUELA. "Mts. of Merida" (CM).

COLUMBIA. Cundinamarca: Bogotá (AME). — Boyaca: Muzo (AME).

ECUADOR. Pastaza: Rio Sarayuco, 7. viii. 1963, *leg.* Lefevre (CM).

PERU. Loreto: San Roque, W. Iquitos (AME); Balsapuerto, [nr.] Rio Paranapura, *leg.* A.S. Pinkus (AMNH).—Huanuco: Tingo Maria, vi.1947, *leg.* Church (AMNH).—Pasco: Rio Palcazu, Chuchuras (AME).—Junin: La Merced, vii.1930, *ex coll.* W.P. Comstock (AMNH).—Not located: "N.E. Peru," *leg.* Bassler (AMNH); Oroya (AME).

BOLIVIA. Santa Cruz: Rio Yapacani, 600 m, ii, ii, ix; Buena Vista, 400 m, v, all *leg.* J. Steinbach (CM).

BRASIL. Pará: Pará [= Belém]; Obidos; both *ex coll.* ANSP (CM).

5. *Lasaia meris* Stoll

Papilio meris Stoll [1781], Pap. Exot. 4: 146, 250, pl: 336 figs. B, C [usually credited to Cramer, but see F. M. Brown 1941, Ann. Ent. Soc. America 34: 128-129.]

Lasaia m. meris: Stichel 1910, Gen. Ins. 112 A: 186 (in part); Seitz 1917, Grossschmett. Erde 5: 682, pl 135 g [in part, but the figure appears to represent true *meris*].

Lasaia meris: Kaye 1904, Trans. Ent. Soc. London 1904: 187; Mengel 1905, Cat. Eryc.: 108.

Lasaia meris is both the first known *Lasaia* and the type of the genus, but it remains unknown to me. Were it not for the figures of Stoll and Seitz I should be inclined to believe that *meris* represented some one of the other known species in the genus. These figures, however, agree with each other and depict a perfectly credible entity: a form as small as *pseudomeris* but at least as heavily marked above as *arsis*. The stated type locality of *meris* is Suriname, and there is no reason to question it. For some reason there are almost no records of *Lasaia* from the Guianas region (*a. agesilas* and *oileus* only), and it would be reasonable to expect a form endemic in this region. Kaye (1904) has recorded a *Lasaia* from Trinidad, at the western end of the Guiana region, under the name *meris*. I have not seen his material, but he could well be right.

It is possible that *meris* may eventually be found conspecific (subspecies) with either *arsis* or *pseudomeris*.

6. *Lasaia pseudomeris* new subspecies (Figs. 5, 18, 19)

Lasaia meris: of authors, in part.

Male. Upperside shining blue-green. Fore wing with the usual fuscous marks, but the pm and st lines generally faint below Cu_2. Just distad of the pm line on the costa are two or three small white spots. The fuscous adt spot in Cu_1-Cu_2 is conspicuously infuscate to termen (as in all members of this and the *agesilas* groups). Hind wing with costal white patch, with or without an enclosed black dot; all fuscous marks below M_1 + costal border of cell are exceedingly faint (mostly in cell) or absent entirely, except for the adt series. *Underside*: both wings brown, with all fuscous marks present. Fore wing a little paler in basal fourth of wing; between pm and st lines paler, whitish costad, filled with pale blue-gray posteriorly. Distad of st row whitish from M_3 to tornus except for infuscation in Cu_1-Cu_2 from adt spot to termen. Hind wing with basal third white; between pm and st lines brown costad of M_2, bluish from there posteriorly. St and adt fuscous spots enlarged at tornus. Fringe of fore wing without white dot in Cu_1-Cu_2; of hind wing almost entirely white, the fuscous at the vein-ends hardly thicker than the veins and sometimes absent entirely.

Male genitalia. Lateral angle of vinculum about a right angle, as in *arsis*; frenum of about average length (dorsal arm 0.52-0.56 as long as penis), not long as in *arsis* (dorsal arm 0.82 as long as penis); the scobinate bulla is flared (rounded in *arsis*).

Length of fore wing: males, 13.5-14.5 mm, mean (of 4), 14.1 mm. (the type series only).

Holotype, male, Chiquitos [= San José de Chiquitos, Santa Cruz], Bolivia, 300 m, iii.1918, *leg.* J. Steinbach, *ex coll.* W.J. Holland.

Paratypes, three males, all Santa Cruz, Bolivia, same collector, as follows: 1, same data as holotype; 1, Santa Cruz de la Sierra, 450 m, no date, C.M. Acc. 5570; 1, Rio Surutu, 350 m, iii.1915, CM. Acc. 5570.

Holotype and paratypes, C.M. Ent. type series no. 647.

Remarks. In addition to the type series I have seen specimens from the following localities:

PANAMA. Chiriquí, *ex coll.* Staulinger [sent as *meris*], *ex coll.* ANSP (1 ♂ CM).

VENEZUELA. Amazonas: Mt. Duida, 14.xi.1928, *leg.* Tate (1 ♂ AMNH).

COLOMBIA. Cundinamarca: Bogotá (1 ♂ AME).—Not located: "Colombia" (AMNH).

PERU. Amazonas: Rio Santiago, *leg.* Bassler (1 ♂ AMNH).—San Martín: Rio Moropa, Moyobamba region, *leg.* Bassler (1 ♂ AMNH).—

Junín: Satipo, ix.1947, *leg.* Paprzycki (1 ♂ CM), and *ex coll.* Le Moult (1 ♂ AME).

BRASIL. Amazonas: Teffé, Rio Solimoes, *ex coll.* Le Moult (1 ♂ AME).— Pará: Obidos (AME); Igarapi-Assu [= Igarape Acú], xii.1911-ii.1912. *leg.* H.S. Parish (1 ♂ AMNH).—Parana: no further data (AME).

This species is about the same size as *meris* and much smaller than *arsis*. It differs from both in the almost complete suppression of fuscous marks on the hind wing upperside posterior to M_1 + costal border of cell. In addition, it differs from *arsis* in the much reduced black fringe spots (which are several times as wide as the veins in *arsis*, those at Cu_1 and Cu_2 being each a little more than half as wide as the white between them). The male genitalia of *arsis* and *pseudomeris* are, as noted above, quite different.

The two males from Satipo, Peru, have all the pale areas below nearly pure white. In the other specimens the several pale areas, particularly that between the pm and st lines on the fore wing, are largely filled with pale dusty bluish.

D. *agesilas* group

This is the "residue" of forms not distinguished by special external characters. Its members are of average size (not small, as in the *oileus* group); with typical dentate margins (not relatively smooth-margined as in the *moeros* group); the upperside of the males is shining blue-green (not dull blue or bronze-brown as in the *sessilis* and *oileus* groups); and there is no costal white patch on the hind wing above (as in males, at least, of the *arsis* group). In the male genitalia the species all have a distinctively short frenum (dorsal arm/penis length 0.35-0.44 in *sula*; 0.38-0.44 in *agesilas*; 0.46 in *aerugo*). In addition the ventral arm of the frenum is thicker in lateral view and appears to be more complexly structured. Females have been seen of the two common species.

Three species are recognised, one (*aerugo*) known from but a single specimen. The other two (*sula, agesilas*) are similarly patterned and colored, both polytypic, both much misdetermined in past literature. These two are closely related, but they are genitalically distinct and broadly sympatric.

7. *Lasaia sula* Staudinger

Extremely similar to *agesilas*, but smaller (male fore wing length about 14 mm, compared with about 16-17 mm in *agesilas*), inclined to be more greenish above, the spotting less strong, and rarely if ever with the space between cell-end bar and pm line of fore wing above filled with fuscous. On the underside the basal area of the fore wing is whitish (pale brown in *age-*

silas), and all the spotting is thinner and fainter. On the fore wing a pale patch—often whitish—is usually present in the distal end of the cell (chiefly in *sula peninsularis*), almost never in *agesilas*. The male genitalia (fig. 7 of *sula peninsularis*; the genitalia of *s. sula* have also been examined and are similar) differ from those of *agesilas* in the flared scobinate bulla (rounded in *agesilas*), in the acute, sharp lateral angle of the vinculum and in the more curved ventral segment of the vinculum.

This species occupies a more or less continuous range from Texas to Honduras. Nominate *sula* occurs from Nayarít south along the west coast of Mexico and across Guatemala to northwestern Honduras. The new subspecies *peninsularis* appears to be confined to the easter coastal regions, from Texas south to the Yucatán Peninsula of Mexico.

7 a. ***Lasaia sula peninsularis***, new subspecies (Figs. 7, 20-23)

Lasaia sessilis: of authors, at least in part, including: Hoffmann 1941, An. Inst. Biol. (México) 11: 697 [identity not certain, but his range description fits this species]; Klots 1951, Field Guide to Butterflies: 125, pl. 18 fig. 4 [figure = *s. sula*]; Ehrlich 1961, *in* Ehrlich & Ehrlich, *How to Know the Butterflies*: 246, fig. 487.

Differs from *s. sula* as follows: male upperside, no differences except fringe (see below); underside with no ochreous on either wing; basal area of fore wing white instead of ochreous; band between pm and st lines iridescent blue on both wings; st row a series of chevrons, concave outward and usually connected at the veins (in *s. sula* a series of dots or short bars, not connected below M_3 on either wing). Fringe usually with a small white internervural dot in Cu_1-Cu_2 of fore wing, visible both above and below (in nominate *sula* the fringe is solid black in this interspace). Female differs only in the chevron-shaped elements of the st line on the underside (showing also, but less clearly, on the upperside). The white Cu_1-Cu_2 fringe dot appears to be absent in this sex as in females of the nominate subspecies.

Length of fore wing: males, 12.5-13.5 mm; mean (of 2) 13.0 mm; female, 14.0 mm.

Holotype: male, Pisté, Yucatán, México, vii.1952, *leg.* E.C. Welling.

Paratypes: 4 ♂, as holotype; 1 ♀, Chichén Itzá, Yucatán, México, 20.vi.1954, *leg.* E.C. Welling.

Holotype and paratypes, C.M. Ent. type series no. 648.

Remarks. In addition to the type series, material has been examined or reported from the following localities:

TEXAS. Pharr (Klots 1951, but not figure; Ehrlich 1961, incl. figure; also AMNH, CM); Brownsville (AMNH; CM); McAllen (AMNH).

MEXICO. Tamaulipas: Arroyo del Meco, 1320 ft., 28.iv.1941. *leg.*

J.&R. Potts (AMNH).—San Luis Potosí: El Salto, 360 m, *leg.* L. & J. Miller (AME); El Benito[2] Valles, 150 ft., 30.iv.1941, *leg.* J.&R. Potts (AMNH).—Veracruz: 1-2 mi W Nanchital, *leg.* L. & J. Miller (AME); 2 mi SE Coatzacoalcos, 18.i.1966 *leg.* H. Clench & L. Miller (CM); Presidio, viii.1954, *leg.* T. Escalante, *ex coll.* C. C. Hoffmann (AMNH).

The subspecies appears to be confined to the eastern lowlands and foothills, from southern Texas south to the Yucatán Peninsula.

7. b. *Lasaia sula sula* Staudinger (figs. 24, 25)

Lasaia narses var. *sula* Staudinger 1888, Exot. Tagfalter: 257 (TL: San Pedro Sula, Honduras).

Lasaia sessilis: of authors, at least in part.

Other references are omitted, since the name *sula* has been almost universally misapplied in earlier works.

The Staudinger type series consists of three males all from Honduras, *leg.* "W" or "Wittk." [Wittkügel]. From these I have selected a lectotype as follows:

Lectotype of *Lasaia narses* var. *sula* Staudinger 1888: ♂ with penned label, "Honduras / 87 Wittk."; a printed label, black letterpress on lavender-pink paper, "Origin."; and a printed label, black letterpress, "Coll. / Staudinger." To these I have added a label, "Lectotype ♂ / Lasaia narses / var. sula / Staudinger 1888 / design. H. Clench / Aug. 1970." Length of fore wing 14.0 mm.

Paratypes: 2 ♂ ♂, each labelled in pen, "Hond. / W." and, as above, "Origin." and "Coll. / Staudinger". One bears in addition a black-line bordered white label with the penned [Stichel's hand] "sula / Stgr. / (Stich.)" and a penned "var. Sula / Stgr." To each of these I have added a paratype label.

This subspecies differs from *sula peninsularis* as noted in the description of the latter. The material of nominate *sula* I have examined comes from the following localities:

MEXICO. Nayarít: Compostela, 10.viii.1932 (1 ♂ AMNH fig'd in Klots 1951).—Colima: Colima, 1600 ft., *leg.* R.G. Wind (series, mostly ♂ ♂, CM, AME); La Salada, 1000 ft., *leg.* R.G. Wind (AME); Comala, 2100 ft., *leg.* R.G. Wind (series; CM).—Chiapas: Cd. Cuauhtemoc, 700 m, *leg.* L.&J. Miller (AME).

HONDURAS. no further data (1 ♂, CM). Also type locality, San Pedro Sula (Staudinger 1888, and above).

8. *Lasaia aerugo*, new species (Figs. 26, 27)

Similar in size and pattern to *sula*, and compared (♂ only) with it as follows: upperside with ground bluer; space between cell-end bar and pm line somewhat tinged with fuscous (not so in *sula*); pm line of hind wing absent below M_1 (faint but present in *sula*); fuscous fringe spots at Cu_1 and Cu_2 each about as wide as white fringe between them (much smaller than the

[2] El Bañito, according to F. M. Brown 1943, J. New York Ent. Soc. 51: 162.

included white in *sula*). Underside with st line more basad (adt spots about midway between st line and termen); hind wing ground distad of st line all white (in *sula* infuscated costad of M_2 and posterior to 2A). Underside spotting larger but crisper; no trace of the bluish shading between pm and st lines found in *sula*.

Male genitalia. Vinculum laterally not so abruptly angled as in *sula*; the scobinate bulla of the frenum has fine hairlike teeth proximally, giving way abruptly to coarse teeth posteriorly. In *sula* the proximal teeth are a little larger and not so hair-like, the posterior teeth not so coarse, and the transition is gradual. Unfortunately the male genitalia of the single available specimen of *aerugo* were mounted in opened ventral view and this has distorted the scobinate bulla so that I cannot tell if it is rounded or flared.

Fore wing length 14 mm.

Holotype, male, Llangua, Rio Llangua, Dept. Cajamarca, Peru, 1500-2000 m, 14.vi.1936 (*leg.* F. Woytkowski), C. M. Acc. 11045. C. M. Ent. type series no. 649.

Remarks. A distinctive species, and apparently either rare or extremely local. The name *aerugo* is latin for *verdigris.*

9. *Lasaia agesilas* Latreille

Differentiated from *sula* above. From the localities I suspect that *agesilas* may be a species of mesic to humid forest, while *sula* appears to be associated with relatively more arid, more open country (low or open forest and scrub).

9. a. ***Lasaia agesilas esmeralda,*** new subspecies (Figs. 32, 33)

Lasaia agesilas agesilas: Stichel 1910, Berlin Ent. Zschr. 55: 48; *ibid.* 1910, Gen. Ins. 112. A: 187; Seitz 1917, Grossschmett. Erde 5: 692.

Differs from nominate *agesilas* only in the green (rather than blue-green) ground color of males above, and in the reduced upperside fuscous spotting, the spots smaller (especially in basal area of the fore wing) and commonly nearly lacking on the hind wing below M_1 + costal border of cell. It resembles *a. callaina* of Middle America in the reduced spotting but differs from that subspecies in the green color and in the virtual absence of the blue gloss on the underside.

Holotype, male, Villa Rica [= Villarrica], Paraguay, no date, *leg.* P. Jorgensen, *ex coll.* ANSP.

Paratypes: 2 ♂ same locality and collector, 11.xi and 11.xii. 1921, *ex coll.* ANSP; 1 ♂ same locality, collector unknown; 2 ♂ Paso Yobay, Paraguay, Nov. and Dec. 51. "rec. G.S."; 1 ♂ Paso Yobay, Villarica, Paraguay, xi. 51, *leg.* F.M. Schade.

Holotype and first two paratypes, C.M. Ent. type series no.

650; the next paratype in AMNH; last three paratypes, AME (Acc. 1969-70).

Remarks. In addition to the type series I have seen material from the following localities:

BRASIL. Sta. Catharina: Nova Teutonia (27°11′ S, 52°23′ W), 26.xii. 1939, *leg.* F. Plaumann (CM); Rio Lacisz, 1934, *leg.* Klug (series, AMNH). —Sao Paulo: Forest of Rio Tieté, nr. Itapura, 29.ix.1908, *leg.* Haseman (CM).—Paraná: Iguassu, 28.ix.1921, 20.xii.1921, 21.i.1922 (AME).

For some reason Stichel (1910, both references) assumed that the type locality of nominate *agesilas* was in southern Brasil. He accordingly called this subspecies nominate *agesilas,* and applied the name *narses* to the subspecies of more northern South America and Central America (*a. agesilas* and *a. callaina* here).

9. b. *Lasaia agesilas agesilas* Latreille (Figs. 30, 31, 36, 37)

Erycina agesilas Latreille 1809, *in* Humboldt & Bonpland, Voyage, Rec. obs. Zool. et Anat. Comp. 1: 396, [pl. 25 figs. 7, 8]; *ibid;* 1827, *op. cit.* (2nd edition): 251.

Lasaia meris: Godman & Salvin 1886, Biol. Centr.-Amer. 1: 455 (in part); and of other authors, in part.

Lasaia narses Staudinger 1888, Exot. Tagfalter: 257; Holland 1931, Butterfly Book (rev. edition): 216 [refers to *a. callaina*], pl. 64 figs. 2, 3 [figs. = *a. agesilas* from Chiriqui, Panama, *ex* Staudinger, received as *narses*].

Lasaia agesilas narses: Stichel 1910, Berlin Ent. Zschr. 55: 48; *ibid.* 1910, Gen. Ins. 112 A: 187; Seitz 1917, Grossschmett. Erde 5: 692, pl. 135 h. These authors all included *callaina* in their concept of "*narses.*"

The type locality of *agesilas* is "les bords de la rivière des Amazones, dans la province de Jaen de Bracamorros." According to Mr. D.S. Fletcher of the British Museum (personal communication) descriptions of other species in the same work refer to "Jaen de Bracamorros, au Pérou." An old map (undated) in the General Library (British Museum) shows a province of Jaen with the town Jaen de Bracamorros. This town appears on modern maps as Jaen, on the middle Rio Marañon, in Cajamarca, northern Peru.

The colored illustration of Latreille (it is uncertain whether these plates were issued with the first or the second edition of the text) are somewhat fanciful, but they and the description fit the present species better than any other. In particular, the large size (Latreille gives 38 mm expanse, which corresponds roughly to a fore wing length of 19 mm, about the upper limit for the species), the brownish disc and base ground color below with paler terminal areas, all are characteristic of the present species.

Staudinger (*l.c.*) in describing *narses* and differentiating it from *meris* said (transl.): "Under the name *meris* 2 species have

heretofore been confused, both of which were taken together by Dr. Hahnel on the Amazon, and which he considered as 2 species certainly distinct from one another, and this is also my opinion." For this reason I consider the Hahnel material of both *arsis* Stgr. and *narses* Stgr. to be the only appropriate material from which to select lectotypes. Under *arsis* two such specimens are still present and both are labelled "Origin.," which I take to indicate syntypic status. One of these I here designate as lectotype, the other as a paratype:

Lectotype of *Lasaia narses* Staudinger 1888: ♂, with the following labels: penned, "Pebas / Hhl."; penned [Stichel's hand], "Lasaia meris / (Stich.)"; letterpress, black on lavender-pink paper, "Origin."; penned, in blue, "narses Stgr." To these I have added a label, penned, reading "Lectotype ♂ / Lasaia narses / Staudinger 1888 / design. H. Clench / Aug. 1970." Length of fore wing 18.0 mm.

Paratype of *L. narses*: ♂, labelled in pen, "Maues / Hhl."; letterpress (as above), "Origin."; pen, "narses Stgr." I have added a paratype label.

The lectotype and paratype differ from nearly all the Bolivian material I have seen (listed below) in the much darker postmedian area, between pm line and cell-end bar, on the fore wing upperside. The paratype has the hind wing spotting exceptionally dark and extensive; the holotype is more normal in this respect.

Staudinger's concept of *narses* also included the subspecies *callaina,* described below. He lists Honduras among the localities for *narses,* and in the Staudinger collection, according to Dr. Hannemann, are found syntypes of *narses* from: Rio San Juan, Colombia (*leg.* "Tr." [= Trötsch]); Chiriqui (collector unknown, probably either Trötsch or Ribbe); and 3 ♂ all from Honduras [probably vic. San Pedro Sula] (*leg.* "Wittk." [= Wittkügel] 1888).

Nominate *agesilas* is widely distributed over northern and central South America, except for southeastern Brasil and Paraguay (where the subspecies *esmeralda* occurs), and extends north into southern Costa Rica. In northern Costa Rica and northward it is abruptly replaced by *callaina.* The following localities for nominate *agesilas* are known to me:

COSTA RICA. Puntarenas: 4-11 mi N Palmar Sur, Rio Terralba, *leg.* H. Real (CM).

PANAMA. Chiriqui, (CM, *ex coll.* Staudinger [sent to Holland as *narses*], figured as *narses* by Holland 1931, Butterfly Book (rev. ed.): pl. 64 figs. 2, 3); Canal Zone (AMNH).

VENEZUELA. Amazonas: Mt. Duida (AMNH).—Not located: Metaban, *ex coll.* F. Johnson (AMNH).

TRINIDAD. no further data (AME).

COLOMBIA. Magdalena: Bonda, 250 ft., *leg.* H.H. Smith (CM).—Cundinamarca: Bogotá (AME).—Boyaca: Muzo, *ex coll.* Le Moult (AME); La Lechera, 850 m, Rio Opon, N Tunja; 15.ii.1946, *leg.* L. Richter (AMNH).—Antioquia: Casabe, across Rio Magdalena from Barranca Bermeja; 1-18.iv.1958, *leg.* Mrs. D.S. Bos (AMNH).—Not located: Choachi (CM, AMNH); La Vega (AMNH); Las Mesitas (CM); "New Granada" (CM).

ECUADOR. Manabí: Palmar, 200 m, 13.iv.1941, *leg.* D. B. Laddy (AMNH).—El Oro: Piñas, *ex coll.* F.M. Brown (AMNH).—Zamora Chinchipe: Zamora, *ex coll.* F.M. Brown (AMNH).—Oriente: Rio Pastaza, xii.1968, *leg.* R. de Lafebre (AME).—Pichincha: Rio Toachi, vi.1969, *leg.* R. de Lafebre (AME).

PERU. Loreto: lower Rio Tapiche, *leg.* Bassler; Balsapuerto, [nr.] Rio Paranapura, *leg.* A.S. Pinkus; middle Rio Ucayali, *leg.* Bassler; (all AMNH); San Roque, W of Iquitos, *ex coll.* Le Moult (AME).—Amazonas: Rio Santiago, *leg.* Bassler (AMNH).—Cajamarca: Jaen (TL *agesilas*).—Pasco: Chuchuras, Rio Palcazu, *ex coll.* Le Moult (AME).—La Libertad (?): upper Rio Marañon, *leg.* Bassler (AMNH).—Huánuco: Rio Pichis, 300 m. (AME); Rio Pachitea, *leg.* Bassler (AMNH).—Junín: Chanchamayo, *leg.* Watkins; Satipo, *ex coll.* Le Moult (both AME); Rio Perene, *leg.* A.S. Pinkus (AMNH).—Cuzco: Grande Pintabamba, 3400 ft., Quillabamba, *leg.* J.D. Pallister (AMNH).—Not located: Achinamiza, *leg.* Bassler (AMNH).

BOLIVIA. Santa Cruz: Portachuelo, Rio Palmatillas; Santa Cruz de la Sierra, 450 m; Rio Yapacani, 600 m; Rio Surutu, 350 m; Prov. del Sara, 450 m; Buena Vista, 400 m; [San José de] Chiquitos, 300 m; Incavaca, Chiquitos, 300 m; all *leg.* J. Steinbach (CM).

BRITISH GUIANA. no further data (AME).—Waramadong [not located] (AMNH).

BRASIL. Amazonas: Rio Negro, *leg.* Bassler (AMNH); Sao Paulo de Olivenca, *leg.* S. Klages (CM).—Pará: Obidos (AMNH).

9. c. ***Lasaia agesilas callaina,*** new subspecies (Figs. 6, 28, 29, 34, 35)

Lasaia narses Staudinger 1888, Exot. Tagfalter: 257 (in part); Holland 1931, Butterfly Book (rev. ed.): 216 (but not pl. 64 figs. 2, 3, which represent *a. agesilas*); Ehrlich 1961, *in* Ehrich & Ehrlich, *How to Know the Butterflies*: 246 (but not Fig. 487, which represents *a. agesilas*).

Lasaia agesilas narses: of authors, in part.

Lasaia sessilis: Seitz 1917, Grossschmett. Erde 5: 692, pl. 135 i (misdetermination on plate, corrected in text; the figure, however, represents *a. callaina*).

? *Lasaia meris*: Hoffmann 1941, An. Inst. Biol. Mexico 11: 697.

Differences from the nominate subspecies are slight but constant, and apparently confined to the male. They consist of a reduction in size of the pm spots of both wings below M_3, and of the spots basad of this series in Cu_2-2A on the fore wing. On the hind wing the spots are virtually or entirely absent below M_3. The underside (both wings) is often more heavily glossed with blue.

Holotype, male, Cd. Valles, San Luis Potosí, México, 28.vi. 1968, *leg.* H.A. Freeman, C.M. Acc. 23054.

Paratypes, same locality and collector, 3 males, 9.vi.1966, 9.vi.1967, 29.vi.1968; 1 female, 11.vi.1967.

Holotype and 4 paratypes, C.M. Ent. type series no. 651.

Remarks. Widespread, but not very common, from central Mexico (both coasts) south to northern Costa Rica (replaced in southern Costa Rica by the nominate subspecies). Other localities for *callaina* are:

MEXICO. Nayarít: Compostela, *leg.* A.S. Pinkus (series, AMNH).—Jalisco: Tenacatita, 22.ix.1939, *ex coll.* F.H. Rindge (AMNH).—Colima: Colima, 6000 ft. (AMNH).—Guerrero: Agua del Obispo, *ex coll.* C. C. Hoffmann (AMNH).—San Luis Potosí: El Benito[3], Valles, 150 ft. 30.iv. 1941; El Sol, Tamazunchale, 400 ft., 30.iv.1941; Arroyo del Calabazas, 250 ft., 30.iv.1941 (all *leg.* J. & R. Potts, AMNH).—Veracruz: Presidio, *ex coll.* C. C. Hoffmann; Misantla, *leg.* Gugelman, *ex coll.* C. C. Hoffmann; Rio Blanco, 2200 ft., 10.vi.1941, *leg.* J. & R. Potts (all AMNH).—Oaxaca: Tuxtepec, *leg.* A. Diaz F. (AME); Pto. Eligio, Mpio. Comaltepec, 700 m, viii.1962, *leg.* E. C. Welling; Soyolapan El Bajo, 200 m, Mpio. Comaltepec, 1.x.1961, *leg.* E. C. Welling; (both AMNH).—Tabasco: Tepescuintle, 650 ft., Mpio. Tenosique, 20.x.1962, *leg.* E. C. Welling (AMNH); 2-3 mi E La Venta, 31.i.1969, *leg.* J. & L. Miller (AME).—Yucatán: Chichén Itzá, *leg.* E. C. Welling (CM).—Quintana Roo: X-Can, *leg.* E. C. Welling (CM).—Chiapas: La Granja; Pueblo Nuevo; Tapachula (all *ex coll.* C. C. Hoffmann, AMNH); Paraiso *leg.* R. Wind (AME).

GUATEMALA. Escuintla, *leg.* W. Schaus (CM); Rio Polochic, Vera Paz (AMNH).

EL SALVADOR. Los Chorros, Santa Tecla, 28.vii.1963, *leg.* M. Serrano (AME).

HONDURAS. no further data (CM).

COSTA RICA. Guápiles, *leg.* W. Schaus (CM).

I have been unable to find any authentic records of this species from Texas, although recorded from there by Holland (1931) and Ehrlich (1961), and consider its occurrence there to be extremely doubtful. The break between this subspecies and nominate *agesilas* appears to be the central cordillera of Costa Rica. North of these mountains (Guápiles) occurs the Middle American *callaina*; south of them (near Palmar Sur) is found nominate *agesilas.*

The name *callaina* is latin for *turquoise colored.*

E. *oileus* group

Agrees in wing shape and style of pattern with the preceding two groups, but differs from them, and from all other *Lasaia,* in its extremely small size (fore wing length 10-11 mm), in the brown coloration of the male upperside, and especially in the metallic streaks on the distal ends of the veins above in both sexes. The underside pattern of *oileus* is variegated fuscous on whitish, very similar to that of the *meris* group, while that of *scotina* is dark brown dots on a nearly uniform tan ground,

[3] See footnote 2, p.

reminiscent of *sessilis*. I have not examined the male genitalia. The female of *oileus* closely resembles the male, but has slightly more rounded wings, slightly paler, more brownish ground color, and the underside fuscous markings are a little browner.

10. *Lasaia oileus* Godman (Figs. 38, 39)

Lasaia oileus Godman 1903, Trans. Ent. Soc. London 1903: 541, pl. 22 figs. 11; Mengel 1905, Cat. Eryc.: 109; Stichel 1910, Gen. Ins. 112 A: 187; Kaye 1914, Trans. Ent. Soc. London 1914: 563; Seitz 1917, Grossschmett. Erde 5: 693, pl. 135 h; Stichel 1931, Lepid. Cat. 26 (pars 40): 439.

This is a wide ranging species, but it seems to be scarce everywhere. The British Honduras record given below is a major extension of the known range. Known localities for *oileus* are as follows:

BRITISH HONDURAS. Middlesex, 125 m, Stann Cr. District, 4.viii.1964, *leg.* E. C. Welling (1 ♀, CM).

PANAMA. Chiriqui (Stichel 1910).

TRINIDAD. St. Anne's Valley (Kaye 1914); Cascade, 25.iv.1920, *leg.* P. Rodriguez, *ex coll.* W. J. Kaye (1 ♂, AME).

FRENCH GUIANA. Cayenne (Godman 1903). Godman questions this locality, but he does not explain why. If it was only because it is so far from Paraguay, whence his types came, then it should be reconsidered. In the light of our present knowledge of the distribution of this species French Guiana is not unreasonable.

PERU. Amazonas: Rio Santiago, 10.xi.1924, *leg.* Bassler (1 ♀, AMNH).—Cuzco: Marcapata (Stichel 1910).

BRASIL. Para: Igarapi-Assu [= Igarape Acú], xii.1911 - ii.1912, *leg.* H. S. Parish (1 ♂, AMNH).—Sao Paulo: "Indiana" [? = Jundiahy] (AME).

PARAGUAY. no further data (TL *oileus*).

11. *Lasaia scotina* Stichel (Figs. 40, 41)

Lasaia scotina Stichel 1910, Gen. Ins. 112 A: 188 (footnote); *ibid.* 1931, Lepid. Cat. 26 (pars 40): 439; Zikán 1952, Dusenia 3: 44, figs. (♀ described) [not seen].

Stichel gives not one word of comparison between his *scotina* and *oileus*, and his rather brief description of it is enough like *oileus* that I could find no reason to believe it distinct. Thanks to Dr. Hannemann I have been able to examine the type of *scotina*. It is unquestionably distinct from *oileus*, but clearly related. A comparison of the two follows (males only):

On the upperside *scotina* is various shades of chocolate brown, while *oileus* tends to be blackish brown. The white fringe areas are large and conspicuous in *oileus*, minute and inconspicuous in *scotina;* the white fringe in M_1-M_2 of the fore wing of *oileus* is absent (brown) in *scotina*, that in M_3-Cu_1 is large in *oileus*, minute in *scotina*, that in Cu_2-2A is large in *oileus*, small and clouded in *scotina*. On the hind wing *oileus*

has prominent broad white fringe in nearly all interspaces (the black fringe reduced in some instances solely to the vein-ends), while *scotina* has nearly uniform brown fringe with a few white scales only, in interspaces M_3-Cu_1 and Cu_2-2A. In *oileus* there is a prominent subhyaline white spot on the fore wing costa just beyond the pm line, wanting completely in *scotina*. The metallic streaks on the vein-ends are much more prominent in *oileus* than in *scotina*, but they appear much more neat and regular in the latter.

On the underside the pattern of *oileus* is dominantly a series of coarse fuscous blotches on a bluish white ground; in *scotina* the ground is nearly uniform tan, with the line elements as small dark brown dots and bars.

Stichel's holotype of *scotina* is the only specimen I have seen. It has these labels: penned, "R.G.d. / S." [Rio Grande do Sul]; black letterpress on orange-red card, "Type"; penned (Stichel's hand) on a black bordered white label, "scotina/Stich." Fore wing length 10.5 mm (given as 11 mm by Stichel).